PROJECT facts

U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Clean Coal Power Initiative (CCPI)

07/2003

Project withdrawn.

COMMERCIAL DEMONSTRATION OF THE AIRBORNE PROCESS

CONTACT

U.S. Department of Energy
National Energy Technology Laboratory

Michael Eastman
Product Manager
412-386-6136
412-386-4604 fax
michael.eastman@netl.doe.gov

Ted McMahon
Project Manager
304-285-4865
304-285-4638
ted.mcmahon@netl.doe.gov

PARTICIPANT

LG&E Energy Corporation
Louisville, KY

LOCATION

Ghent Generating Station
Carrollton, Carroll County, KY

TOTAL ESTIMATED COST

$120,126,600

COST SHARE

DOE	$31,122,300
Participant	$89,004,300

Project Description

This project is a full-scale demonstration of advanced emission control technologies integrated with existing emissions control equipment. The demonstration team led by LG&E Energy Corporation, includes Airborne Pollution Control, developer and supplier of the fertilizer production system, The Babcock & Wilcox Company, dry sorbent injection and sodium based scrubbing system provider, and USFilter's HPD Systems, regeneration system provider. LG&E Energy Corporation will host this project and serve as the prime contractor with the Department of Energy. The Babcock and Wilcox Company will support LG&E Energy Corporation by participating in the test program and providing program management support. The Babcock & Wilcox Company, USFilter's HPD Systems, and Airborne Pollution Control will manage and provide the design, installation, start-up and testing for the four-year project.

The host site will be the 524 MWe Unit 2 at the Ghent Generating Station, owned by LG&E Energy Corporation's Kentucky Utilities Company located near Carollton, Kentucky. The project concept is depicted in the figure on the following page.

Benefits

A primary benefit of this project is the demonstration of a potential cost-effective process that can be widely applied in the near term to meet required emissions reductions both for retrofits to existing unscrubbed plants and for new coal-based installations. The Ghent Generating Station Unit 2 could burn in excess of 6,000 tons per day of eastern bituminous coal containing up to 3.5% sulfur. The Airborne Process integrates wet sodium scrubbing and dry sorbent injection of sodium bicarbonate to achieve estimated emission reductions of 99.5% of SO_2, 90% of SO_3, 90% of NOx, and 90% of mercury, while turning the byproducts into a high-quality, salable, granular fertilizer. High costs for sodium-based scrubbing are avoided by employing novel technology to regenerate the sodium bicarbonate sorbent, allowing it to be reused. Fertilizer production will substantially reduce solid waste disposal and will result in a useful by-product. If successful, this demonstration will result in the conversion of a 1977 vintage plant into one of the cleanest coal-fired power plants in the Nation while producing competitively priced electricity.

Commercial Demonstration of the Airborne Process

ADDITIONAL TEAM MEMBERS

McDermott Technology, Inc.
Alliance, OH
Babcock & Wilcox Company
Barberton, OH
USFilter
Plainfield, IL
Airborne Pollution Control
Calgary, AB Canada

CUSTOMER SERVICE

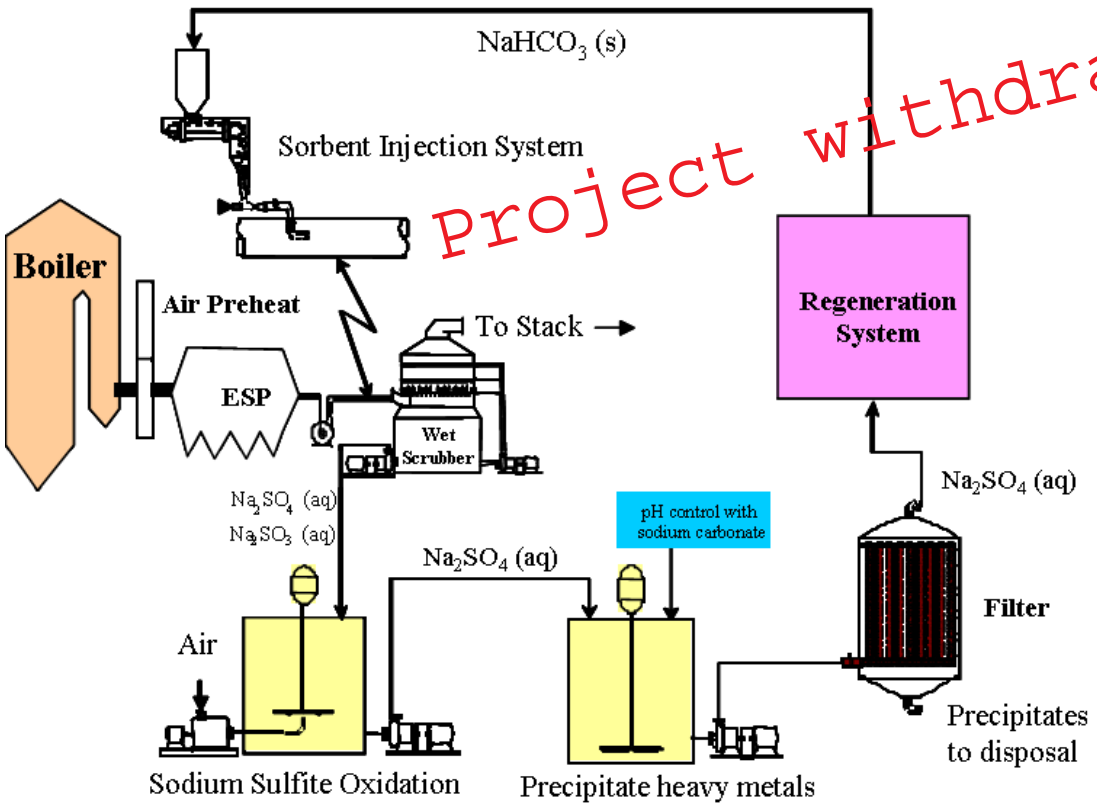
800-553-7681

WEBSITE

www.netl.doe.gov

The high levels of pollutant removal achieved by LG&E Energy Corporation's Ghent Unit 2 will meet with the Administration's proposed Clear Skies Initiative (CSI). CSI calls for emission reductions of 73% for SO_2, 67% for NOx, and 69% for mercury (beyond current reduction requirements) by the time full implementation is achieved in 2018. Completion of this demonstration is planned for 2007 and, thus, will occur during the first phase of reductions called for by the CSI, scheduled for 2010.

Since the Airborne Process expects high levels of sulfur and oxidized mercury removal, the primary application for this technology will be on power plants firing high-sulfur, Eastern bituminous coal. While the Airborne Process can be applied to any such plant, the most attractive situation will occur for a significant fraction of the existing fleet of coal-fired power plants, being those that are located in the Midwestern and Southeastern states as they have access to large agricultural markets for the fertilizer. When demonstrated, this project will provide a cost-effective option for un-scrubbed units in the existing fleet as well as new coal-based generation for meeting domestic energy and environmental objectives.



Project withdrawn.

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